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10/509,711

09/30/2004

Andrew James Goodwin

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EXAMINER

ARANCIBIA, MAUREEN GRAMAGLIA

ART UNIT

PAPER NUMBER

1792

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,711	<b>Applicant(s)</b> GOODWIN ET AL.	
	<b>Examiner</b> Maureen G. Arancibia	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/04</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, Claims 1-10 and 25, in the reply filed on 14 December 2007 is acknowledged.
2. The cancellation of Claims 11-18, non-elected without traverse in the reply filed on 14 December 2007, is acknowledged.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**5. Claims 1, 2, 6-10, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over International Publication WO 98/10116 to Kolluri in view of U.S. Patent 5,414,324 to Roth et al. (from Applicant's IDS)**

In regards to Claims 1, 2, and 9, Kolluri teaches a plasma assembly comprising a first pair of vertically arrayed, parallel spaced apart planar electrodes 78, 78; the spacing between the electrodes of the pair forming a first plasma region, characterized in that the assembly further comprises a means including guide rollers and reels 80 for transporting a flexible substrate 74 through the first plasma region; and an atomizer 81 adapted to introduce an atomized liquid coating making material into the plasma region. (Figure 5; at least Page 8, Lines 16-26)

Kolluri does not expressly teach that the plasma assembly is at atmospheric pressure. However, the plasma assembly taught by Kolluri would be structurally capable of being put at atmospheric pressure, based on the pumping rate by pump 45 from outer casing 40 selected by a user. (Figure 5; at least Page 7, Lines 13-17) It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

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In regards to Claims 1, 10, and 25, Kolluri does not expressly teach second and third pairs of vertically arrayed, parallel spaced apart planar electrodes, the space between each pair of electrodes forming second and third plasma regions, wherein the substrate is transported successively from the first plasma region through the second and third plasma regions.

However, it would have been obvious to one of ordinary skill in the art to duplicate the first pair of vertically arrayed, parallel spaced apart planar electrodes to obtain second and third pairs arranged in series with the first pair, for the predictable result of providing additional plasma generation zones for further processing of the flexible substrate 74. It has been held that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Further in regards to Claim 10, the plasma assembly taught by Kolluri as modified as describe above would be structurally capable of preparing multilayer coatings on flexible substrate 74, simply by running the flexible substrate through the successive plasma zones in single and/or subsequent passes.

Further in regards to Claims 1 and 8, Kolluri does not expressly teach that each planar electrode is a dielectric with a metallic coating, such that at least one dielectric plate is arranged between each pair of electrodes.

Roth et al. teaches that a planar metallic electrode 10 should be covered with dielectric plates 14 on all sides. (Column 3, Lines 31-49)

It would have been obvious to one of ordinary skill in the art to further modify the three pairs of electrodes taught by Kolluri, already modified as

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discussed above, for each to be a planar metallic electrode covered with dielectric plates on all sides, such that dielectric plates would be arranged between each pair of electrodes. The motivation for making such a modification, as taught by Roth et al. (Column 3, Lines 31-49), would have been to discourage electrical arcing from the edges or back side of the electrode plates.

It is noted in regards to Claim 8, that the electrodes taught by the combination of Kolluri and Roth et al. may be considered as a dielectric (the dielectric plate) with a metallic coating (the attached metal electrode plate).

In regards to Claim 6, the outer casing 40 taught by Kolluri is of an enclosed box shape, as shown in Figure 5, and thus may be considered to comprise a lid (top wall of the box) that prevents escape of a process gas (vaporized liquid) which is required in order to activate a plasma.

In regards to Claim 7, Kolluri teaches that the atomizer 80 is an ultrasonic nozzle. (see at least Page 8, Lines 16-21)

**6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolluri in view of Roth et al. as applied to claim 1 above, and further in view of U.S. Patent 6,176,982 to Rickerby et al.**

The teachings of Kolluri and Roth et al. were discussed above in regards to Claim 1.

In regards to Claims 3-5, the combination of Kolluri and Roth et al. teaches that each electrode comprises an electrode unit containing an electrode and an adjacent dielectric plate, as discussed above in regards to Claim 1.

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The combination of Kolluri and Roth et al. does not expressly teach that each electrode unit comprises a cooling liquid distribution system for directing a cooling conductive liquid, specifically water, onto the exterior of the electrode to cover a planar face of the electrode, or that the electrode unit is in the form of a watertight box having a side formed by a dielectric plate having bonded thereto, on the interior of the box, a planar electrode together with a liquid inlet and a liquid outlet.

Rickerby et al. teaches that an electrode unit is in the form of a watertight box, having a side formed by an interior-facing plate 46 (analogous to the dielectric plate taught by the combination of Kolluri and Roth et al.) having bonded thereto, on the interior of the box, an electrode 38, wherein a cooling liquid distribution system comprising a liquid inlet 50 and a liquid outlet 52 directs water (a cooling conductive liquid) onto the exterior of the electrode to cover a planar face of the electrode. (Figure 3; Column 5, Lines 21-57)

It would have been obvious to one of ordinary skill in the art to modify the combination of Kolluri and Roth et al. to have each electrode unit be in the form of a watertight box comprising a cooling liquid distribution system as taught by Rickerby et al. The motivation for making such a modification, as taught by Rickerby et al. (Column 5, Lines 49-52), would have been to allow water to be circulated against the inner wall of the electrode, allowing the electrode to be cooled.

It is noted that the electrode units taught by the combination of Kolluri, Roth et al., and Rickerby et al. would still have a planar or plate shape as taught

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in the primary teachings of Kolluri. It would be well within the skill of one of ordinary skill in the art to adapt the teachings of Rickerby et al. in the context of cylindrical electrodes to be used in the context of planar electrodes as taught by Kolluri, simply by changing the shape of the watertight box to conform to the teachings of Kolluri. It is noted that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

**7. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being obvious over Kolluri in view of Roth et al. as applied to Claim 1 above, and further in view of International Publication WO 02/35576 to O'Reilly (from Applicant's IDS).**

The applied reference to O'Reilly has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and



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reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

The teachings of Kolluri and Roth et al. were discussed above in regards to Claim 1.

In regards to Claims 3-5, the combination of Kolluri and Roth et al. teaches that each electrode comprises an electrode unit containing an electrode and an adjacent dielectric plate, as discussed above in regards to Claim 1.

The combination of Kolluri and Roth et al. does not expressly teach that each electrode unit comprises a cooling liquid distribution system for directing a cooling conductive liquid, specifically water, onto the exterior of the electrode to cover a planar face of the electrode, or that the electrode unit is in the form of a watertight box having a side formed by a dielectric plate having bonded thereto, on the interior of the box, a planar electrode together with a liquid inlet and a liquid outlet.

O'Reilly et al. clearly teaches the identical claimed electrode unit in all the claimed detail. See at least Pages 11-13 and Figures 1-4.

It would have been obvious to one of ordinary skill in the art to modify the combination of Kolluri and Roth et al. to have each electrode unit be in the form of a watertight box comprising a cooling liquid distribution system as taught by

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O'Reilly et al. The motivation for making such a modification, as taught by O'Reilly et al. (Page 13, Lines 21-30), would have been to cool the electrodes, allowing the problem of thermal management to be overcome.

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**9. Claims 1-10 and 25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-13 of copending Application No. 10/510555.**

Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 11-13 of copending Application No. 10/510555, which incorporate the limitations of Claim 9 and 10 of copending

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Application No. 10/510555, recite all of the structural details of the invention recited in Claims 1-5 and 8-10 of the instant application, including means for transporting a flexible substrate using reels and/or rollers through the plasma zones formed by first and second pairs of planar electrodes having dielectric plates bonded thereto and being in the form of watertight boxes, wherein water is projected against the exterior planar faces of the electrodes for cooling.

In regards to Claim 6, Examiner takes official notice that it is well-known in the art to provide an outer casing comprising a lid around a plasma generation assembly, to allow for the creation of a controlled processing atmosphere. The references cited above may be referred to as evidence of this common knowledge.

Thus, it would have been obvious to one of ordinary skill in the art to provide an outer casing comprising a lid around the plasma generation assembly, for the predictable result of allowing for the creation of a controlled processing atmosphere.

In regards to Claim 7, Examiner takes official notice that it is well-known in the art for an atomizer to be an ultrasonic nozzle. The references cited above may be referred to as evidence of this common knowledge.

Thus, it would have been obvious to one of ordinary skill in the art to have the atomizer be an ultrasonic nozzle, as an art-recognized suitable means of generating a vapor from a liquid material supply. It has been held that an express suggestion to substitute one equivalent component or process for

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another is not necessary to render such substitution obvious. *In re Fout*, 675

F.2d 297, 213 USPQ 532 (CCPA 1982).

In regards to Claim 25, it would have been obvious to one of ordinary skill in the art to duplicate the first and second pairs of vertically arrayed, parallel spaced apart planar electrodes recited in claims 11-13 of copending Application No. 10/510555 to obtain a third pair arranged in series with the first and second pairs, for the predictable result of providing an additional plasma generation zone for further processing of the flexible substrate. It has been held that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### **Conclusion**

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571)272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Maureen G. Arancibia/  
Examiner, Art Unit 1792

/Parviz Hassanzadeh/  
Supervisory Patent Examiner, Art Unit 1792